



KEY POINT SUMMARY

OBJECTIVES

This article identifies important ICU physical design features by looking across the best-practice example ICUs in the United States.

A Decade of Adult Intensive Care Unit Design: A Study of the Physical Design Features of the Best-Practice Examples

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Key Concepts/Context

This article reports a study of the physical design characteristics of a set of adult intensive care units (ICUs), built between 1993 and 2003. These ICUs were recognized as the best-practice examples by the Society of Critical Care Medicine, the American Association of Critical Care Nurses, and the American Institute of Architects.

Methods

This study is based on a systematic analysis of the materials found on these ICUs in the booklet and videos jointly published by the above Society of Critical Care Medicine, the American Association of Critical Care Nurses, and the American Institute of Architects in 2005.

Findings

The study identified the Guidelines, economy, patient volume, and the available research evidence as the four primary forces shaping the physical design of adult ICUs. According to the study findings, the effects of economy and patient volume on ICU design were not always in the best interests of patient, staff, or family. The effects of the Guidelines were positive in some areas of design, because they ensured that the basic needs of patients, staff, and families/visitors were met in ICUs. However, in other areas, the Guidelines had negative effects, because the design community became fixated with its recommendations, against its better judgment. Finally, the effects of available research evidence on ICU design were limited but positive. The research evidence allowed the community to push the boundaries defined by the Guidelines and to use better design features than those



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suggested in the Guidelines. Since economy and patient volume are beyond control, the ICU design community would serve its purpose well by conducting more empirical research aimed at resolving basic ICU design questions and updating the Guidelines for Intensive Care Unit Design more frequently on the basis of that research.

Limitations

Generalizability is limited by sample size. Information was limited to video and document review.

Design Implication

The study finds that most of the examples of best-practice adult ICUs have the following negative characteristics: (1) they are built as renovation projects with more health and safety hazards during construction; (2) most of them are mixed-service units with more safety and staffing problems; (3) the overall layout and the layout of staff work areas in these ICUs do not have any common design solutions for improved patient and staff outcomes; and (4) in these ICUs, family space is often located outside the unit, and family access to the patient room is restricted, even though family presence at the bedside may be important for improved patient outcomes. Some of these negative characteristics are offset by the following positive characteristics in most ICUs: (1) they have only private patient rooms for improved patient care, safety, privacy, and comfort; (2) most patient beds are freestanding for easy access to patients from all sides; (3) they have hand-washing sinks and waste disposal facilities in the patient room for improved safety; and (4) most patient rooms have natural light to help patients with circadian rhythms.